

C-2407

### Abstract

A fuel processing method is operable to remove substantially all of the sulfur present in an undiluted oxygenated hydrocarbon fuel stock supply which contains an oxygenate and which is used to power an internal combustion engine in a mobile environment, such as an automobile, bus, truck, boat, or the like, or in a stationary environment. The fuel stock can be gasoline, diesel fuel, or other like fuels which contain relatively high levels of organic sulfur compounds such as mercaptans, sulfides, disulfides, and the like. The undiluted hydrocarbon fuel supply is passed through a nickel reactant desulfurizer bed wherein essentially all of the sulfur in the organic sulfur compounds reacts with the nickel reactant, and is converted to nickel sulfide, while the desulfurized organic remnants continue through the remainder of the fuel processing system. The method can be used to desulfurize either a liquid or a gaseous fuel stream, which contains an oxygenate such as MTBE, ethanol, methanol, or the like. The inclusion of the oxygenate serves to extend the useful life of the desulfurization apparatus and method.

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